What Is Claimed Is:

1. An image sensor apparatus for converting an incident light into electric signal, said apparatus comprising:

a color separation layer comprising a body layer for receiving said incident light, a surface of said body layer being covered by a two-dimensional microlens array of a plurality of lenslets, and the other surface of said body layer being covered by a blazed diffraction grating layer;

a zeroth-order reflection layer disposed behind said color separation layer along the path of said incident light for reflecting away zeroth-order component of said incident light; and

an image sensor array disposed behind said zeroth-order reflection layer along the path of said incident light and comprising a plurality of light-sensing cells arranged in a two-dimensional array; each of said light-sensing cells being disposed at a position aligned with a corresponding one of said lenslets in said microlens array and comprising a red, a green and a blue photoelectric sensor for respectively converting energy of photons of said incident light in the red, green and blue color bands into electric signals proportionally representing the energy level of photons in the corresponding color bands.

2. The image sensor apparatus of claim 1, wherein said blazed diffraction grating layer comprises a plurality of slits, said slits having a periodicity larger than the periodicity of said lenslet of said microlens array.

3. The image sensor apparatus of claim 1, wherein each of said slits has a non-symmetric configuration of two inclined surfaces.

4. The image sensor apparatus of claim 1, wherein said zeroth-order reflection layer is disposed in front of said image sensor array along the path of said incident light and has no spacing therebetween.

5. The image sensor apparatus of claim 1, wherein said zeroth-order reflection layer is disposed in front of said image sensor array along the path of said incident light and has a vacuum space therebetween.

6. The image sensor apparatus of claim 1, wherein said zeroth-order reflection layer is disposed in front of said image sensor array along the path of said incident light and has a gas-filled space therebetween.

7. The image sensor apparatus of claim 1, wherein said zeroth-order reflection layer is disposed in front of said image sensor array along the path of said incident light and has a transparent dielectric medium-filled space therebetween.

8. The image sensor apparatus of claim 1, wherein said image sensor apparatus is sealed in a CLCC package.

9. The image sensor apparatus of claim 1, wherein said image sensor apparatus is sealed in a PLCC package.

10. The image sensor apparatus of claim 1, wherein said image sensor apparatus is sealed in a QFP package.

11. The image sensor apparatus of claim 1, wherein said image sensor apparatus is sealed in a QFN package.

12. The image sensor apparatus of claim 1, wherein said image sensor apparatus is sealed in a QFJ package.

13. A method for fabricating an image sensor apparatus for converting an incident light into electric signal, said method comprising the steps of:

(a) constructing a color separation layer utilizing a transparent optical material, said color separation layer comprising a body layer for receiving said incident light, a surface of said body layer being covered by a two-dimensional microlens array of lenslets, and the other surface of said body layer being covered by a blazed diffraction grating layer;

(b) constructing a zeroth-order reflection layer utilizing a transparent optical material, said zeroth-order reflection layer being disposed behind said color separation layer along the path of said incident light for reflecting away zeroth-order component of said incident light; and

(c) constructing an image sensor array utilizing a transparent optical material, said image sensor array being disposed behind said zeroth-order reflection layer along the path of said incident light and comprising a plurality of light-sensing cells arranged in a two-dimensional array; each of said light-sensing cells being disposed at a position aligned with a corresponding one of said lenslets in said microlens array and comprising a red, a green and a blue photoelectric sensor for respectively converting energy of photons of said incident light in the red, green and blue color bands into electric signals proportionally representing the energy level of photons in the corresponding color bands.

14. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material is optical glass.

15. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material is optical plastics.

16. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material used for constructing said microlens array is PMMA.

17. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material used for constructing said blazed grating is PMMA.

18. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material used for constructing said microlens array is photoresist.

19. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material used for constructing said blazed grating is photoresist.

20. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material used for constructing said microlens array is ARTON.

21. The method for fabricating an image sensor apparatus of claim 13, wherein said transparent optical material used for constructing said blazed grating is ARTON.

22. The method for fabricating an image sensor apparatus of claim 13, wherein said color separation layer is constructed utilizing chemical etching procedures.

23. The method for fabricating an image sensor apparatus of claim 13, wherein said color separation layer is constructed utilizing excimer laser machining procedures.

24. The method for fabricating an image sensor apparatus of claim 13, wherein said color separation layer is constructed utilizing Micro-Electro-Mechanical System procedures.